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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yinghui Dan

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03/26/2008

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EXAMINER

KUBELIK, ANNE R

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

03/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/715,910	Applicant(s) DAN ET AL.	
	Examiner Anne R. Kubelik	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 5-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-15 are pending.
2. This application contains claims 5-15 drawn to an invention nonelected with traverse in the response filed 29 May 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulkarni et al (US Patent 6,365,407, filed March 2001) in view of Packer et al (1995, Free Rad. Biol. and Med. 19:227-250). The rejection is repeated for the reasons of record as set forth in the Office action mailed 6 August 2007. Applicant's arguments filed 5 February 2008 have been fully considered but they are not persuasive.

Applicant urges that Parker et al only teach use of lipoic acid as an antioxidant for animal cells, not plant cells; culturing of plant and animal cells are different (response pg 6-7).

This is not found persuasive because Parker et al teaches that lipoic acid scavenges hydroxyls and singlet oxygen (pg 229, left column, paragraph 4, and right column, paragraph 2); these functions and all those listed in Table 1 would not be different in a plant cell culture. Kulkarni et al teaches that three very different antioxidants, including ascorbic acid, work to prevent the phenolic oxidation of callus (column 3, lines 52-55). One of skill in the art would

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expect that other antioxidants, including lipoic acid, would also do the same. Further, Parker et al teach that lipoic acid serves to supplement many of the functions of ascorbic acid ((paragraph spanning pg 233-234, pg 234, left column, paragraphs 3-4).

Applicant urges that lipoic acid is not listed anywhere in Kulkarni et al, and Kulkarni et al does not teach the use of antioxidants in connection to genetic transformation (response pg 7).

This is not found persuasive. Kulkarni et al do not need to teach the use of lipoic acid; the rejection is based on a combination of references. Further, there is no nucleic acid transformation step in the instant claims; all such recitation is in the preamble, which is given no patentable weight.

Applicant urges that the current invention yields unexpected results; an increase in transient expression and percent transgenic plants per explant were seen in Table 2 and 3 (response pg 7-8).

This is not found persuasive. First the claims are not drawn to expression. Further, the effect was compared to media with no antioxidant. The comparison needed to show unexpected results would be to compare media containing the antioxidants Kulkarni et al used to media containing lipoic acid.

Applicant urges that lipoic acid's effect on browning can be seen in Table 1 (response pg 8).

This is not found persuasive. The effect on browning was compared to media with no antioxidant. The comparison needed to show unexpected results would be to compare media containing the antioxidants Kulkarni et al used to media containing lipoic acid.

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5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (1997, Phyton 37(3):31-38 in view of Packer et al (1995, Free Rad. Biol. And Med. 19:227-250).

The rejection is repeated for the reasons of record as set forth in the Office action mailed 6 August 2007. Applicant's arguments filed 5 February 2008 have been fully considered but they are not persuasive.

Applicant urges that Benson et al cautions against the use of tissue culture as a models for the study of stress response, that there is not direct evidence to implicate free radicals et al as causal agents in genetic instability in plant cultures; thus, one of skill in the art would not interpret the reference to teach use of antioxidants in tissue culture because there is not enough understanding to make it worthwhile (response pg 8-9).

This is not found persuasive because the claims are drawn to tissue culture, not models for the study of stress response. Further, Benson et al indicate that parallel analyses of pro- and anti-oxidants must be done (pg 36, paragraph 2), which is a strong directive to use antioxidants in plant culture.

Applicant urges that the current invention yields unexpected results; an increase in transient expression and percent transgenic plants per explant were seen in Table 2 and 3 (response pg 7-8).

This is not found persuasive. No effect was seen for potato, or only over certain concentrations (Tables 7-9). The claims are drawn to concentrations that had no effect and to use for any plant. Thus, the claims are not commensurate in scope with any unexpected results seen over Benson et al in view of Parker et al.

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Applicant urges that Parker relates to lipoic acid in mammalian systems and Benson et al is simply asserted to teach that tissue culture is affected by free radicals; one of skill in the art would not interpret these references as predicting the positive effect on plant transformation when a media with lipoic acid is used (response pg 9).

This is not found persuasive because Benson et al suggests testing the effects of antioxidants on plant tissue culture (paragraph spanning pg 36-37). One of skill in the art would try lipoic acid because Packer et al teaches that lipoic acid is the “ideal”, “universal antioxidant” (pg 228, right column, paragraph 2).

Applicant urges that the motivation provided is hindsight reasoning; a general motivation to create a unspecified protocol does not make obvious a specific method (response pg 9-10).

This is not found persuasive. The only step in the claimed method is culturing plant cells on media containing lipoic acid or an analog thereof. The only specificity is found in the choice of lipoic acid as the antioxidant; one of skill in the art would try lipoic acid because Packer et al teaches that lipoic acid is the “ideal”, “universal antioxidant” (pg 228, right column, paragraph 2).

Applicant again urges that Benson et al cautions against the use of tissue culture as a models, Parker et al was directed to mammalian systems and the instant results showed a reduction in browning, an increase in transient expression and increase in the percent of transgenic plants produced per explant (response pg 10).

This is not found persuasive because the claims are drawn to tissue culture, not models for the study of stress response. Parker et al teaches that lipoic acid scavenges hydroxyls and singlet oxygen (pg 229, left column, paragraph 4, and right column, paragraph 2); these

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functions and all those listed in Table 1 would not be different in a plant cell culture. No effect was seen for potato, or only over certain concentrations (Tables 7-9). The claims are drawn to concentrations that had no effect and to use for any plant. Thus, the claims are not commensurate in scope with any unexpected results seen over Benson et al in view of Parker et al.

Conclusion

6. **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975.

The central fax number for official correspondence is (571) 273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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Anne Kubelik, Ph.D.

March 29, 2008

/Anne R. Kubelik/

Primary Examiner, Art Unit 1638